

**AMENDMENTS TO THE CLAIMS**

1. (Currently Amended) A Vestigial Sideband (VSB) receiver comprising:

an intermediate frequency signal generator generating an intermediate frequency band signal from a received signal;

a demodulator generating a complex base band signal consisting of an I channel signal and a Q channel signal using the intermediate frequency band signal and at least one local carrier wave signal; and

a complex base band matched filter filtering at least one of the I channel signal and the Q channel signal, which includes a first base band matched filter filtering a real domain of the I channel signal, a second base band matched filter filtering an imaginary domain of the I channel signal, a third base band matched filter filtering a real domain of the Q channel signal, a fourth base band matched filter filtering an imaginary domain of the Q channel signal, a first adder adding the filtered real domain signals of the I channel and the Q channel output from the first base band matched filter and the third base band matched filter to output the resultant value as a new I channel signal, and a second adder adding the filtered imaginary domain signals of the I channel and the Q channel output from the second base band matched filter and the fourth base band matched filter to output the resultant value as a new Q channel signal.

2. (Cancelled)

3. (Original) The VSB receiver of claim 1, wherein the complex base band matched filter is designed so that a frequency characteristic  $H(w)$  is identical to a frequency spectrum  $R(w)$  of the base band signal.

4. (Currently Amended) ~~The~~ A Vestigial Sideband (VSB) receiver comprising:  
an intermediate frequency signal generator generating an intermediate frequency band  
signal from a received signal;  
a demodulator generating a complex base band signal consisting of an I channel signal  
and a Q channel signal using the intermediate frequency band signal and at least one local carrier  
wave signal; and  
a complex base band matched filter filtering at least one of the I channel signal and the Q  
channel signal, which  
~~of claim 1, wherein the complex base band matched filter includes a fifth-base band~~  
~~matched filter filtering the I channel signal, a sixth-base band matched filter filtering the Q~~  
~~channel signal, and an a-third-adder adding the filtered I channel signal used as the real to the real~~  
~~domain and the filtered Q channel signal used as the imaginary to the imaginary domain to~~  
~~output the added complex signal as a new I channel signal.~~

5. (Currently Amended) A Vestigial Sideband (VSB) receiver comprising:  
a first multiplier multiplying a receiving signal by an intermediate frequency signal to  
generate an intermediate frequency band signal;

a second multiplier multiplying the intermediate frequency band signal by a first local carrier wave signal to demodulate the intermediate frequency band signal to an I channel signal;

a third multiplier multiplying the intermediate frequency band signal by a second local carrier wave signal to demodulate the intermediate frequency band signal to a Q channel signal;  
and

a complex base band matched filter filtering at least one of the demodulated I channel signal and the demodulated Q channel to output a complex signal, which includes a first base band matched filter filtering a real domain of the I channel signal, a second base band matched filter filtering an imaginary domain of the I channel signal, a third base band matched filter filtering a real domain of the Q channel signal, a fourth base band matched filter filtering an imaginary domain of the Q channel signal, a first adder adding the filtered real domain signals of the I channel and the Q channel output from the first base band matched filter and the third base band matched filter to output the resultant value as a new I channel signal, and a second adder adding the filtered imaginary domain signals of the I channel and the Q channel output from the second base band matched filter and the fourth base band matched filter to output the resultant value as a new Q channel signal.

6. (Original) The VSB receiver of claim 5, wherein the complex base band matched filter is designed so that a frequency characteristic  $H(w)$  is identical to a frequency spectrum  $R(w)$  of the base band signal.

7. (Cancelled)

8. (Currently Amended) The VSB receiver of claim 5, wherein the complex base band matched filter includes a ~~fifth~~-base band matched filter filtering the I channel signal, a ~~sixth~~-base band matched filter filtering the Q channel signal, and ~~an a-third~~-adder adding the filtered I channel signal used as the real ~~to the real~~-domain and the filtered Q channel signal used as the imaginary ~~to the imaginary~~-domain to output the added complex signal as a new I channel signal.

9. (Currently Amended) The VSB receiver of claim 5, wherein the intermediate frequency signal is  $2\cos(w_c - w_i)t$ ;  $w_c = 2\pi f_c$  where  $f_c$  is the frequency of the carrier signal and  $w_i = 2\pi f_i$  where  $f_i$  is the frequency of the intermediate frequency signal.

10. (Currently Amended) The VSB receiver of claim 5, wherein the first local carrier wave is  $2\cos w_i t$ , and the second local carrier wave is  $2\sin w_i t$ ;  $w_i = 2\pi f_i$  where  $f_i$  is the frequency of the intermediate frequency signal.

11-13. (Cancelled)